What is claimed is:

1. A machine for corrugating a metal foil strip, comprising

(a) an enclosure defining a chamber;

(b) a controllable heat source for heating the chamber;

(c) at least one tool set received in the chamber and adapted to form corrugations in the metal foil strip;

(d) feeder elements supplying and guiding the metal foil strip from outside the chamber into the chamber and to the tools;

(e) a drive for the at least one tool set mounted outside the chamber and coupled to the tool set to actuate the tool set; and

(f) delivery elements guiding the strip from the tools and out of the chamber.

2. The machine according to claim 1, wherein at least one gas is introduced into the chamber and heated by the heat source.

3. The machine according to claim 1, wherein the enclosure is double-walled and liquid-cooled.

4. The machine according to claim 1, and further comprising a source supplying an inert gas to the chamber at a controlled gas flow rate.

5. The machine according to claim 1, wherein the enclosure includes partition walls forming a medial sub-chamber and two end sub-chambers on opposite ends of the medial sub-chamber, a passage is provided between the medial chamber and each sub-chamber, the feeder elements and delivery elements guide the strip through the sub-chambers and passages, the at least one tool set is received in the medial sub-chamber, and the inert gas is supplied to the medial sub-chamber.

6. The machine according to claim 1, wherein the feeder elements include guide members within the chamber forming a serpentine delivery path for the strip so as to permit the strip to be heated before it reaches the at least one tool set.

7. The machine according to claim 5, wherein the feeder elements include guide members within the medial sub-chamber forming a serpentine delivery path for the strip so as to permit the strip to be heated within the medial sub-chamber before it reaches the at least one tool set.

8. The machine according to claim 1, wherein the feeder elements include a guide chute supporting the strip along a path from an opening in a wall of the enclosure to the at least one tool set.

9. The machine according to claim 1, wherein the delivery elements include a guide chute supporting the strip along a

path from the at least one tool set to an opening in a wall of the enclosure.

10. The machine according to claim 1, wherein there is a pre-form tool set that partially forms corrugations and a final tool set that fully forms the corrugations.

11. The machine according to claim 1, wherein there is a tool set that includes a driven form gear having forming teeth and an idler form gear having forming teeth meshing with the forming teeth of the driven form gear and driven by the driven form gear.

12. The machine according to claim 1, wherein there is a tool set that includes a driven form gear having forming teeth, an idler pre-form gear having forming teeth meshing with the forming teeth of the driven form gear at a first location along the perimeter of the driven form gear and driven by the driven form gear, and an idler final form gear having forming teeth meshing with the forming teeth of the driven form gear at a second location along the perimeter of the driven form gear spaced apart from the first location and driven by the driven form gear.

13. The machine according to claim 1, wherein there is a tool set that includes a driven form gear having forming teeth, an idler form gear having forming teeth meshing with the forming teeth of the driven form gear, and a gear train coupling the

driven form gear and the idler form gear so that both the driven and idler form gears are driven in rotation.

14. The machine according to claim 1, wherein there is a pre-form tool set and a final tool set and each tool set includes a driven form gear having forming teeth, an idler form gear having forming teeth meshing with the forming teeth of the driven form gear, and a gear train coupling the driven form gear and the idler form gear so that both the driven and idler form gears are driven in rotation.

15. The machine according to claim 14, wherein the driven form gear of one of the tool sets is driven by the driven form gear of the other tool set.

16. The machine according to claim 1, wherein there is a tool set that has a driven form gear having teeth defining cavities and a punch having a tooth substantially complementary in shape to the shape of the cavities, and the drive includes a rotary drive rotating the driven form gear and a reciprocating linear actuator driving the punch radially of the form gear.

17. The machine according to claim 16, wherein the rotary drive rotates the form gear intermittently with a dwell period during which the punch forms a corrugation in the strip by deforming the strip into a cavity of the form gear.

18. The machine according to claim 17, wherein the punch includes a holder foot that engages an outgoing loop of a

corrugation of the strip against the tip of the tooth of the form gear on the outgoing side of the cavity on each forming stroke of the tooth of the punch.

19. The machine according to claim 1, wherein there is a pre-form tool set and a final tool set, wherein both tool sets share a driven form gear having teeth defining cavities, wherein the pre-form tool set includes a pre-form punch having a tooth partially complementary in shape to the shape of the cavities, wherein the final pre-form tool set includes a final punch having a tooth substantially complementary in shape to the shape of the cavities, wherein the final punch is spaced-apart circumferentially from the pre-form punch, and wherein the drive includes a rotary drive rotating the driven form gear and a reciprocating linear actuator driving each punch radially of the form gear.

20. The machine according to claim 19, wherein the rotary drive rotates the form gear intermittently with a dwell period during which the punches form corrugations in the strip by deforming the strip into cavities of the form gear.

21. The machine according to claim 20, wherein each punch includes a holder foot that engages an outgoing loop of a corrugation of the strip against the tip of the tooth of the form gear on the outgoing side of the cavity on each forming stroke of the tooth of the punch.

22. A method of corrugating a metal foil strip, comprising:

providing an enclosure defining a chamber;

maintaining the chamber at a temperature high enough to heat the foil strip so as to permit corrugations to be formed in the strip when the strip is moved through the chamber;

supplying and guiding the metal foil strip from outside the chamber into the chamber and to a tool set located in the chamber;

forming corrugations in the strip using the tool set by causing the tool set to be driven by means of a drive mounted outside the chamber and coupled to the tool set; and

guiding the strip from the tool set and out of the chamber.

23. The method according to claim 22, wherein at least one gas is introduced into the chamber and heated by the heat source.

24. The method according to claim 22, wherein the enclosure is double-walled and liquid-cooled.

25. The method according to claim 22 and further comprising the step of supplying an inert gas to the chamber at a controlled rate.

26. The method according to claim 25, wherein the enclosure includes partition walls forming a medial sub-chamber and two end sub-chambers on opposite ends of the medial sub-chamber

and an opening is provided between the medial chamber and each sub-chamber, and wherein feeder elements and delivery elements guide the strip through the sub-chambers and openings, the tool set is located in the medial sub-chamber, and the inert gas is supplied to the medial sub-chamber.

27. The method according to claim 22, wherein the step of feeding the strip includes moving the strip along a serpentine delivery path within the chamber so as to permit the strip to be heated to a temperature suitable for forming the corrugations before it reaches the tool set.

28. The method according to claim 22, wherein the step of feeding the strip includes moving the strip along and in contact with a guide chute along a path from an opening in a wall of the enclosure to the tool set.

29. The method according to claim 22, wherein the step of delivering the strip includes moving the strip along and in contact with a guide chute from the tool set to an opening in a wall of the enclosure

30. The method according to claim 22, wherein the step of forming the corrugations includes partially forming the corrugations using a pre-form tool set and further forming the corrugations using a final tool set.

31. The method according to claim 22, wherein the corrugations are formed by a tool set that includes a driven

form gear having forming teeth and an idler form gear having forming teeth meshing with the forming teeth of the driven form gear and driven by the driven form gear.

32. The method according to claim 22, wherein the corrugations are formed by a tool set that includes a driven form gear having forming teeth, an idler pre-form gear having forming teeth meshing with the forming teeth of the driven form gear at a first location along the perimeter of the driven form gear and driven by the driven form gear, and an idler final form gear having forming teeth meshing with the forming teeth of the driven form gear at a second location along the perimeter of the driven form gear spaced apart from the first location and driven by the driven form gear.

33. The method according to claim 22, wherein the corrugations are formed by a tool set that includes a driven form gear having forming teeth, an idler form gear having forming teeth meshing with the forming teeth of the driven form gear, and a gear train coupling the driven form gear and the idler form gear so that both the driven and idler form gears are driven in rotation.

34. The method according to claim 22, wherein the corrugations are formed by a pre-form tool set and a final tool set and each tool set includes a driven form gear having forming teeth, an idler form gear having forming teeth meshing

with the forming teeth of the driven form gear, and a gear train coupling the driven form gear and the idler form gear so that both the driven and idler form gears are driven in rotation.

35. The method according to claim 34, wherein the driven form gear of one of the tool sets is driven by the driven form gear of the other tool set.

36. The method according to claim 22, wherein the corrugations are formed by a tool set that has a form gear having teeth defining cavities and driven in rotation and a punch having a tooth substantially complementary in shape to the shape of the cavities and driven linearly and reciprocally along an axis substantially radially of the form gear.

37. The method according to claim 36, wherein the form gear is rotated intermittently with dwell periods during which the punch at least partly forms a single corrugation in the strip by deforming the strip into a cavity of the form gear.

38. The method according to claim 37, wherein while a corrugation is being formed by the punch an outgoing loop of a corrugation of the strip is held by a foot associated with the punch against the tip of the tooth of the form gear on the outgoing side of the cavity on each forming stroke of the tooth of the punch.

39. The method according to claim 22, wherein the corrugations are formed by a pre-form tool set and a final form tool set, wherein both tool sets share a rotatably driven form gear having teeth defining cavities, wherein the pre-form tool set includes a pre-form punch having a tooth partially complementary in shape to the shape of the cavities, wherein the final pre-form tool set includes a final punch having a tooth substantially complementary in shape to the shape of the cavities, wherein the final punch is spaced-apart circumferentially from the pre-form punch, and wherein each punch is driven by a reciprocating linear actuator radially of the form gear.

40. The method according to claim 39, wherein the form gear is rotated intermittently with dwell periods during which the punches form corrugations in the strip by deforming the strip into cavities of the form gear.

41. The method according to claim 40 wherein while corrugations are being formed by each punch an outgoing loop of a corrugation of the strip is held against the tip of the tooth of the form gear on the outgoing side of the cavity during each forming stroke of the tooth of the punch.